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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,371	12/11/2001	James Arthur Herbst	STL10474/40046.174USU1	1140
23552	7590	09/30/2004	EXAMINER	
MERCHANT & GOULD PC P.O. BOX 2903 MINNEAPOLIS, MN 55402-0903			LI, ZHUO H	
			ART UNIT	PAPER NUMBER
			2186	

DATE MAILED: 09/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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## Office Action Summary

Application No.

10/014,371

Applicant(s)

HERBST ET AL.

Examiner

Zhuo H Li

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2004.  
2a) ☒ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-26 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1,2,4,5,7-10,15,16 and 21-26 is/are rejected.  
7) ☒ Claim(s) 6,11-14 and 17-20 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

1. This Office action is in response to the amendment filed 6/29/2004.

***Claim Rejections - 35 USC § 112***

2. Claims 12, 18 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 12, 18 and 19, the term “may” renders the claims vague and indefinite because the term “may” has an alternative meaning that does not positively identify the claimed limitations.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2, 4-5, 7-10, 15-16 and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cai et al. (US 2001/0049770 A1 hereinafter Cai) in view of Scherr (US 2002/0116585 A1).

Regarding claim 1, Cai discloses a method of optimizing cache management in a data storage device in operable communication with a host computer comprising the steps of receiving a command from the host computer exhibiting a data usage pattern ([0021], lines 3-5) selecting a cache management algorithm based on the data usage pattern ([0022], lines 3-10), and employing the cache management algorithm to process the command ([0023], lines 3-10). Cai differs from the claimed invention in not specifically teaching the steps of updating a set of usage statistics in response to receipt of the command and correlating the set of data usage statistics with a predetermined set of pattern associated with known host computer platform to identify one of the host computer platforms that most closely matches the set of usage statistics.

However, Scherr teaches a technique to provide a configurable, scalable variety of cache management systems to improve perceived response time by updating a set of usage statistics in response to receipt of a request and correlating a set of data usage statistics with a predetermined set of usage pattern associated with known host computer platforms to identify one of the host computer platforms that most closely matches the set of usage statistics (figure 5, [0053]-[0066] and [0070]-[0076]). Therefore, it would have been obvious to a person of ordinary skill in the art

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at the time the invention was made to modify Cai in updating the set of usage statistics in response to receipt of the command and correlating the set of data usage statistics with the predetermined set of pattern associated with known host computer platform to identify one of the host computer platforms that most closely matches the set of usage statistics, as per teaching of Scherr, because it provides response time improvements that can readily be adjusted to different usage patterns.

Regarding claim 2, Cai discloses the selecting step further comprising the steps of determining whether a change is detected in the data usage pattern ([0054], lines 6-8), and if a change is detected in the data usage pattern, selecting a cache management algorithm associated with the data usage pattern ([0054], lines 8-13).

Regarding claim 4, Cai discloses the step of directing a cache management executive to execute the selected cache management algorithm ([0054], lines 12-15).

Regarding claim 5, Scherr discloses the step of transmitting a base memory offset associated with the selected cache management algorithm to the cache management executive ([0068]).

Regarding claims 7-8, Cai differs from the claimed invention in not specifically teaching the step of copying the sets of cache management algorithms and the predetermined set of usage patterns from the data disc to memory. However, Cai teaches that storing applications, operating system modules or routines, device drivers, BIOS modules or routines, and interrupt handlers, can be stored in one or more storage media which could be flash media, EEPROMS, or fixed disks. In addition, Cai further teaches that the instructions stored in the storage media when executed cause the system to perform programmed acts ([0043]), wherein instructions are loaded

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into the system ([0044], lines 1-2). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made in having the step of copying the sets of cache management algorithms and the predetermined set of usage patterns from the data disc to the memory because of saving cache space on the system.

Regarding claim 9, Cai discloses a cache manager for managing caching in a data storage device comprising a usage statistics module storing statistics associated with a sequence of commands received by the data storage device ([0021]-[0023] and [0054]). Cai differs from the claimed invention in not specifically teaching a configuration module storing one or more sets of pattern data indicative of predetermined patterns of command sequences associated with known file systems, and a correlator accessing the usage statistics module and the pattern data in the configuration module and correlating the usage statistics with the pattern data to determine a match between the usage statistics and one of the sets of pattern data. However, Scherr teaches such (figure 5, [0053]-[0066] and [0070]-[0076]). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Cai in having the configuration module storing one or more sets of pattern data indicative of predetermined patterns of command sequences associated with known file systems, and the correlator accessing the usage statistics module and the pattern data in the configuration module and correlating the usage statistics with the pattern data to determine a match between the usage statistics and one of the sets of pattern data, as per teaching of Scherr, because it provides response time improvements that can readily be adjusted to different usage patterns.

Regarding claim 10, Scherr teaches to gather statistics related to the received sequence of commands and transmitting the statistics to the usage statistic module ([0057]).

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Regarding claims 15-16, the limitations of the claims are rejected as the same reasons set forth in claim 1.

Regarding claim 21, the limitations of the claim are rejected as the same reasons set forth in claim 1.

Regarding claims 22-24, Scherr teaches the file system command including a request to read data from a data storage device ([0064]) and store data on the data storage device during a download of data [0065].

Regarding claims 25-26, Scherr teaches to access the data according to the selected algorithm comprising accessing a cache ([0068]), wherein the selected algorithm comprises a cache management algorithm ([0046]).

#### ***Allowable Subject Matter***

5. Claims 6, 11-14 and 17-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including **all of the limitations of the base claim and any intervening claims.**

#### ***Response to Arguments***

6. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.



***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shaheen et al. (US PAT. 6,032,227) discloses a method for cache management in mobile user file system (abstract). Trevathan (US 2002/0147888 A1) discloses a caching system for managing a cache memory using a predictive modeling engine to select a cache algorithm (abstract).

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any response to this final action should be mailed to:

BOX AF

Commissioner of Patents and Trademarks

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Washington, D.C. 20231

Or faxed to:


(703) 308-6606

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA, Fourth Floor (Receptionist).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zhuo H. Li whose telephone number is 703-305-3846. The examiner can normally be reached on Tuesday to Friday from 9:30 a.m. to 7:00 p.m. The examiner can also be reached on alternate Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim, can be reached on (703) 305-3821.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Zhuo H. Li 

  
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MATTHEW KIM  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100